Algebra II Reference Sheet

Formulas

General Equations

$Ax + By = C$

$y = mx + b$

$y - y_1 = m(x - x_1)$

$y = a(x - h)^2 + k$

$y = ax^2 + bx + c$

$y = ab^x$

$y = \log_b x$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Midpoint Formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

Distance Formula

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Pythagorean Theorem

$a^2 + b^2 = c^2$

Sequences

$a_n = a_1 + (n - 1)d$

$a_1 = 1\text{st term}, a_n = a_{n-1} + d$

$a_n = a_1 r^{n-1}$

$a_1 = 1\text{st term}, a_n = ra_{n-1}$

Combinations

$$_nC_r = \frac{n!}{(n - r)!r!}$$

Permutations

$$_nP_r = \frac{n!}{(n - r)!}$$

Interest Formulas

$I = prt$

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$A = Pe^{rt}$

Probability Formulas

Exclusive	$P(A \text{ or } B) = P(A) + P(B)$
Inclusive	$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$
Independent	$P(A \text{ and } B) = P(A) \cdot P(B)$
Dependent	$P(A \text{ and } B) = P(A) \cdot P(B\|A)$
Conditional	$P(B\|A) = \frac{P(A \text{ and } B)}{P(A)}$